Space Weather Forecast

Issued on Wednesday, 16 August 2023 at 13:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight Chance of G1/Minor Geomagnetic Storm conditions on Day 1 and 2 (16th and 17th). Chance of R1/Minor Radio Blackouts throughout.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low with only low level Common-class flaring over the past 24 hours. There are now nine sunspot regions on the visible disc. A region approaching centre disc in the northern hemisphere is the largest group on the disc, with the main spots increasing in size and these originally larger spots fragmenting into several smaller spots. Another region in the far northeast appears to contain a fairly simple magnetic configuration despite its moderate size with no apparent change in appearance since the previous assessment. A further region in the southeast has continued to develop, producing some intermediate spots with a slightly more complex magnetic configuration. The other regions appear to be smaller and simpler at present.
A filament (containing the Sun's plasma and magnetic field) lifted off from a region in the southeast at 15/2200 UTC, however, this does not appear to have produced a Coronal Mass Ejection (CME). As a result no Earth-bound CMEs are currently expected.

Solar Wind / Geomagnetic Activity: The solar wind was characterized by an ongoing slow solar wind regime. The solar wind speed was at background levels between 270-330 km/s. The Interplanetary Magnetic Field was weak, with the north-south component varying weakly, but this was mostly southward directed. The net result of the above solar wind parameters was for Quiet (Kp 0-2) geomagnetic indices throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar Activity is currently Low. There is a daily Chance of activity rising to Moderate levels with isolated Moderate-class flares. Western solar horizon departures are expected to be roughly compensated for by eastern arriving groups, giving an estimated flat trend on significant flare probabilities.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs currently in the forecast. There are up to two coronal hole fast winds due in the period. The first will perhaps be the more potent if it manifests on Day 1 (16th), and then the second is most likely on Day 2 (17th). Initially Quiet geomagnetic conditions should become occasionally Unsettled to Active with a Slight Chance of isolated G1/Minor Storm intervals on Day 1 and 2, but reducing later in the period to likely leave more reliably Quiet conditions.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	2	2
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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